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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/551,215	04/17/2000	Charles Byron Alexander Shawcross	37824-0002	1632

7590 04/21/2004

EXAMINER
ZIA, SYED

ART UNIT	PAPER NUMBER
2131	

DATE MAILED: 04/21/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/551,215	SHAWCROSS, CHARLES BYRON ALEXANDER	
	Examiner	Art Unit	
	Syed Zia	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1: This office action is in response to amendment and arguments filed on February 06, 2004 (Paper No. 3). Original application contained Claims 1-24. Applicant amended Claims 1-24 and amended the abstract to overcome objection of minor informalities. The amendment filed have been entered and made of record. Presently pending claims are 1-24.

Response to Arguments

2: Applicant's arguments filed on February 06, 2004 (Paper No. 3) have been fully considered but they are not persuasive because of the following reasons:

Regarding Claims 1-9, 11, 13-21, and 23 applicants argued that the cited prior art (CPA) [Hayden et. al U. S. Patent 6,018,771] does not teach, " IP multicast protocol, including WAN protocol, despite the fact that such protocol were... dated August 1989" and "adopting LAN system of Hayden to an IP WAN environment is a non-trivial task".

This is not found persuasive. The system of Hayden clearly teaches and describes a system of dynamic assignment of single multicast address from network wide pool of unassigned multicast addresses and subsequently use that address for node's own purposes which also involves returning that address to pool when no longer required. In that system the network of computers is interconnected by a network structure of several multicast addresses and selects a multicast address not being used by any computer on the network, and assigns the selected

multicast address to the data stream. The data stream is transmitted from the transmitter computer to the assigned multicast address for receipt by the receiver computers only. Thus, this system permits networks to use fewer multicast addresses than would be required if they were assigned in a more traditional basis where a unique address is assigned for each possible function.

Regarding Claims 10, and 22 applicants argued that the cited prior art (CPA) [Caronni et. al U. S. Patent 6,049,878] does not teach, " a method of identifying and filtering unicast datagram implementing denial of service attack on a site through the network".

This is not found persuasive. The system of Caronni clearly teaches filtering in a multicast system for computer supported collaboration work in distributed computing environment, where the participant key management component of a receiver holds a participant key shared with a sender and all receiving entities, and another participant key shared with the sender and to only one receiving entity. A group key management component, coupled to a traffic distribution component, has data structure for storing all the participant's keys.

Regarding Claims 12, and 24 applicants argued that the cited prior art (CPA) [Li U. S. Patent 6,606,706] does not teach, "border routers running standard IP multicast routing protocol".

This is not found persuasive. The system of Li clearly teaches a system and method where a multicast data packet is transmitted from a source node to a destination node, through respective security brokers and border routers. The corresponding source and destination addresses of the transmitting and receiving unit are encapsulated in the multicast data packets during the packet data transmission.

As a result, the system of cited prior arts does implement and teaches a system and method for Internet Protocol network communication for protecting Internet sites against denial of service attack on insecure public networks.

Applicants clearly have failed to explicitly identify specific claim limitations, which would define a patentable distinction over prior arts.

The examiner is not trying to teach the invention but is merely trying to interpret the claim language in its broadest and reasonable meaning. The examiner will not interpret to read narrowly the claim language to read exactly from the specification, but will interpret the claim language in the broadest reasonable interpretation in view of the specification. Therefore, the examiner asserts that the system of cited prior arts does teach or suggest the subject matter broadly recited in independent Claims 1, and 13 and in subsequent dependent Claims 2-12, and 14-24. Accordingly, rejections for claims 1-24 are respectfully maintained.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-9, 11, 13-21 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Hayden (U.S. Patent No. 6,018,771). With respect to claims 1, and 13, Hayden teach in a multicast capable Internet Protocol (IP) network, a system and method of multicast address hopping for communicating multicast packets between transmitter and subscriber end stations on a chosen multicast (IP) address selected from a plurality of multicast IP addresses for multicast communication (see abstract; Fig. 1; col. 3, lines 18-34), the method comprising the step of:

selectively varying the chosen multicast IP address selected from the plurality of multicast IP addresses according to a predetermined scheme known only to the transmitter and subscriber end stations; and communicating the multicast packets on the chosen multicast IP address *wherein selectively varying the chosen multicast IP address is initiated by a cryptographic key* (see col. 1, lines 53-56, 65-67 to col. 2, lines 1-20).

5. Claims 2 and 14 are rejected as above in rejecting claims 1 and 13, wherein the multicast packets are communicated to an end station having subscribed to a set of multicast IP addresses known only to the transmitter and subscriber end stations comprising at least one multicast IP

address known only to the transmitter and subscriber end stations, selected from the plurality of multicast IP addresses for multicast communication and including the chosen multicast IP address known only to the transmitter and subscriber end stations for transmitting the multicast packets (see col. 1, lines 65-67 to col. 2, lines 1-20).

6. Claims 3 and 15 are rejected as above in rejecting claims 2 and 14, wherein the set of multicast IP addresses is selectively varied according to a predetermined scheme known only to the transmitter and subscriber end stations (col. 2, lines 8-35).

7. Claims 4 and 16 are rejected as above in rejecting claims 3 and 15, wherein the predetermined scheme for selectively varying the set of multicast IP addresses comprises adding to and dropping from the set of multicast IP addresses in a sequence known only to the transmitter and subscriber end stations but which appears random to an attacker (see col. 2, lines 8-35, 44-57).

8. Claims 5 and 17 are rejected as above in rejecting claims 1 and 13, wherein the step of selectively varying the chosen multicast IP address comprises:

hopping from one multicast IP address to another in a sequence known only to the transmitter and subscriber end stations but which appears random to an attacker (see col. 4, lines 39-65; col. 6, lines 43-48)

9. Claims 6 and 18 are rejected as above in rejecting claims 3 and 15, wherein the step of selectively varying the chosen multicast IP address comprises:

hopping from one multicast IP address to another chosen from the set of multicast IP addresses in a sequence known only to the transmitter and subscriber end stations but which appears random to an attacker (see col. 6, lines 6-24, 43-48).

10. Claims 7 and 19 are rejected as above in rejecting claims 1 and 13, further including the steps of:

receiving unicast data intended for an end destination host site by at least one remote decoy end station for transmitting multicast packets (see col. 2, lines 8-35); and

formatting the unicast data into the multicast packets for communicating on the chosen multicast IP address to at least one subscriber end station for receiving multicast packets (see col. 2, lines 8-35);

wherein the at least one subscriber end station for receiving multicast packets is capable of communicating the unicast data to the host site (see col. 2, lines 8-35).

11. Claims 8 and 20 are rejected as above in rejecting claims 7 and 19, further including the steps of:

identifying to the IP network a preferred route to the end destination host site through the at least one remote decoy end station for transmitting multicast packets (see col. 2, lines 8-35; col. 4, lines 26-45).

12. Claims 9 and 21 are rejected as above in rejecting claims 8 and 20, further including the step of:

filtering the unicast data received at least one remote decoy end station and limiting the rate of communicating the multicast packets (see col. 1, lines 65-67 to col. 2, lines 1-7)

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 10-11 and 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayden U.S. Patent No. 6,018,771 in view of Caronni et al U.S. Patent No. 6,049,878 ('Caronni' hereinafter).

15. With respect to claims 10 and 22, Hayden teaches all the limitations as above as indicated in claims 9 and 21.

Hayden does not explicitly disclose identifying and discarding unicast data implementing an attack on said host site.

However, Caronni disclose the step of filtering comprises identifying and discarding, at least one remote decoy end station, unicast data implementing an attack on the host site (see col. 7, lines 40-52; col. 9, lines 57-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Caronni within the system of Hayden to arrive at the invention as claimed because both references are directed to a network communicating multicast packets and unicast data between end stations, and because the implementation of discarding unicast data implementing an attack on said host site would alleviate most or all of the effects of certain types of Denial of Service attacks or information gathering, further improving the level of security and extending the capabilities of the combined system.

16. Claims 11 and 23 are rejected as above in rejecting claims 10 and 22, wherein the at least one remote decoy end station for transmitting multicast packets is located within a single autonomous system of the IP network (see Hayden: col. 2, lines 8-35; col. 3, lines 18-34).

17. Claims 12 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayden (U.S. Patent No. 6,018,771) in view of Li U.S. (Patent No. 6,606,706).

18. With respect to claims 12 and 24, Hayden teaches all the limitations as above as indicated in claims 11 and 23.

Hayden does not explicitly disclose wherein the at least one remote decoy end station for transmitting multicast packets is located adjacent to border routers within the single autonomous system of the IP network.

However, Li disclose wherein said end station for transmitting multicast packets is located adjacent to border routers with the single autonomous system of the network (see col. 2, lines 28-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Li within the system of Hayden to arrive at the invention as claimed because both references are directed to a network communicating multicast packets and unicast data between end stations, and because the implementation of transmitting multicast packets which are located adjacent to border routers would efficiently route multicast packets through the network or internetwork, further improving the level of efficiency and reliability of the system to be able to determine the best route for a given packet to take, and furthermore extending the capabilities of the combined system.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed Zia whose telephone number is 703-305-3881. The examiner can normally be reached on Monday - Friday 9:00 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sz
April 10, 2004

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